TRANSPORT & MASS TRANSIT DEPARTMENT

GOVERNMENT OF SINDH

ADP SCHEME # 3305

PC-1

CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

Along current Route # 1, Route # 2, Route # 3 and Route # 4 of People's Bus Service Project

(PC-1 Cost- PKR 199.881 Million)

September 2022

SINDH MASS TRANSIT AUTHORITY

GOVERNMENT OF SINDH

PC – 1 FORM

CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

1	Name of Project:	Construction of Bus Lay Byes along major roads in Karachi for Peoples Bus Service routes – ADP scheme # 3305
2	Location	Karachi Peoples Bus Service route Plan(s) are attached as Annexure A.
3	Authorities Responsible for	
	i) Sponsoring Agency	Transport & Mass Transit Department, Government of Sindh
	ii) Execution	Sindh Mass Transit Authority (SMTA)
	iii) Operational Maintenance	Sindh Mass Transit Authority (SMTA)
	iv) Concerned Federal Ministry	N/A
4	a) Plan Provision	
	i) If the Project is included in the current Five Years Plan, specify actual location	YES, ADP Scheme No. 3305/2022-2023 UID: TRDTM-PP-22-1468
	ii) If not included in the current plan, how is it is now proposed to be included?	Not Applicable
	iii) If the project is proposed to be financed out of block provision, indicate	Not Applicable

Total Block Provision	Amount Already Committed	Amount Proposed for this Project		Balance Available
-	-	-	-	-

	b) Provision in the current year PSD/ADP	(ADP Scheme No. 3305/2022-2023) with allocation of Rs.200 Million
5	Project objectives and its relationship with sector objectives	Transport system in Karachi being the Economic Hub of Pakistan, currently catering to more than 20 million people faces numerous and the most significant challenges. The complex and heterogeneous traffic pool is largely dominated by private vehicles most of which are poorly maintained and inadequate enforcement of traffic rules in Karachi create serious and unbearable congestion.

However, the establishment of the Sindh Mass Transit Authority (SMTA) by the Government of Sindh (GoS) is solely focused upon providing safe, efficient, and comfortable urban transportation systems in the major cities of Sindh. In regard to the present situation of the intra-city public transport, SMTA has proposed an "Integrated Bus Operations" system as a solution to cater for the public transport demand in six major cities of the province including Karachi, Hyderabad, Mirpurkhas, Sukkur, Larkana, and SBA. The proposed system will provide a high quality of service to the public of these cities, meet the public transport demand, and contribute towards the development of a sustainable transport system in the cities.

The Transport and Mass Transit Department (TMTD) through the Sindh Mass Transit Authority (SMTA) has planned to induct public transport buses of decent quality and operate on competitive intra-city routes. The project has been named as "Sindh Intra-District Peoples Bus Service Project". The main objectives are defined as under:

a. The new induction of modern bus fleet will be a feeder up to the existing transport system and will be operated on major routes of Karachi through efficient and convenient transfers.
b. To provide reliable, safe, affordable, high quality and fast mass transport service.
c. To improve the quality of life of commuters in Karachi.
d. To vastly improve the quality of public transport system in Karachi.
e. To provide efficient transport system where people can manage their time for their destination and new busses will help to reduce pollution in the city.
f. All busses will be air-conditioned with latest features integrated.

These New Buses in Karachi have a banner name as "Peoples Bus Service". These Red Buses in Karachi are planned to operate on 10 different routes, connecting major residentials hubs with Industrial and Business Centers.

Air-Conditioned Buses have the seating capacity of around 40 persons with dedicated spaces for Ladies along with standing capacity of around 40 more persons. Bus Service starts from 7 am in the morning and runs till 10 pm night.

Passengers will need to wait for 5 minutes on average (10 minutes at maximum) in Peak Hours (i.e. 8 am to 10 am and 5 pm to 8 pm).

During off-peak hours, passenger will need to wait for

an average 10 minutes (at maximum for 20 minutes)

Bus lay byes are planned to be provided along the stops of bus routes, to enable buses to stop out of the traffic stream and passengers safely drop off or ride into the bus. They eliminate obstruction of other traffic by stationary buses. They are the important part of the bus system network.

6 Description, Justification Technical Parameters and Technology Transfer aspects

Construction of Bus Lay-Bys along major roads in Karachi (current routes of People's Bus Service project – exact locations to be determined by the design consultant based on the surveys and coordination with NRTC)

i) Route # 1 – Malir to Tower (27Kms) for 37 buses of 12m length
ii) Route # 2 – North Karachi to Korangi Crossing (30 Kms) for 38 buses of 12m length.
iii) Route # 3 – North Karachi to Nasir Jump (38Kms) for 38 buses of 12m length.
iv) Route # 4 – North Karachi to West Wharf (23Kms) for 37 buses of 12m length

i) Description of Scope of Works

Description of Works:

Following major items will be included in the scope of work:

- Removal of Kerb stone
- Removal/Replacement of Block Pavement on footpath
- Removal of Light pole
- Removal of Electric Poles
- Removal of Small trees
- Removal/Relocation of big Trees.
- Lowering or Raising Manhole chambers
- Upstand Curb
- Heel Curb
- Flush Curb
- Asphalt pavement and associated items
- Paver Block(s) and associated items
- Pavement marking
- Traffic signs
- Cut and Fill material
- Other Required items as per Design and site conditions

ii) Justification of the Project

Justification of the Project

Bus stops and lay-bys have significant effects on bus service, passengers boarding and alighting at each bus stop so as to ease the flow of traffic and thereby reducing the travel time. Some benefits are:

- Allows passengers to board and alight out of the travel lane
- Provides a protected area away from moving vehicles for both the stopped bus and bus passengers
- Minimize delays to through traffic

iii) Technical Parameters	Layout & Typical X-section of Bus Bays and drop off lanes are attached as Annexure B **Pavement section of Lay-bys with Asphalt Pavement (Total 35 Nos):** Following pavement thicknesses have been worked out: ➢ Asphalt Concrete Wearing Course:5cm ➢ Asphalt Concrete Base Course:7.5cm ➢ Aggregate Base Coures:25cm ➢ Subbase Course: 25 cm ➢ Improved subgrade : 30cm **Pavement section of Lay-bys with Block Pavement (Total 35 Nos) :** Following pavement thicknesses have been worked out: ➢ Paver block :8cm ➢ Sand cushion:4cm ➢ Aggregate Base Coures:25cm ➢ Subbase Course: 25 cm ➢ Improved subgrade : 30cm **Bus Drop-Off on Existing Lane:** Existing lane will be utilized where applicable with appropriate signing and marking.
7 Capital Cost Estimate	
i) Capital Cost	Total Project Cost is Rs.199.881 million Detailed Cost Estimates are provided at Annexure C

GOVERNMENT OF SINDH
TRANSPORT AND MASS TRANSIT DEPARTMENT
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
COST ESTIMATE
SUMMARY

S. No.	DESCRIPTION	AMOUNT (PKR)	Nos.	TOTAL AMOUNT (PKR)
1	**New Bus Lay By With Asphalt Pavement**			
i	Pavement Widening for New Bus Lay Byes with Improved Subgrade	708,967	21	14,888,309
ii	Pavement Widening for New Bus Lay Byes without Improved Subgrade	686,674	14	9,613,436
iii	Ancillary works including Pavement Marking & Signs	949,593	35	33,235,755
1 (Total)	**New Bus Lay by with Asphalt Pavement**			**57,737,500**
2	**Drop Off Lane - Pavement Marking and Signs including Patch Work**			
i	Patch Work	159,257	20	3,185,140
ii	Ancillary works including Pavement Marking & Signs	207,786	38	7,895,868
iii	Ancillary works including Pavement Marking & Signs (including FootPath)	495,786	38	18,839,868
2 (Total)	**Drop Off Lane**			**29,920,876**
3	**New Bus Lay By With Paver blocks**			
i	Pavement Widening for New Bus Lay Bye with Improved subgrade	796,848	21	16,733,808
ii	Pavement Widening for New Bus Lay Byes without Improved Subgrade	774,554	14	10,843,756
iii	Ancillary works including Pavement Marking & Signs	831,711	35	29,109,885
3 (Total)	**New Bus Lay by with Paver blocks**			**56,687,449**
4	Cutting & removing trees within a distance of 100 feet.			
(Highway Schedule 2012 Vol-III Part-VI Item No 4:, Page-15)	(a) Upto 2.5 feet girth.	577	16	9,235
	(b) From 2.6 feet to 6.0 feet girth.	1,129	15	16,934
5	Utility Crossing Ducts and Inspection Chamber	659,955	36	23,758,380
6	Re-location of Electric Poles	180,000	39	7,020,000
A	**Sub - total (1 to 6)**			**175,150,374**
7	Cartage (1% of A)			1,751,504
B	**Construction Cost**			**176,901,878**
i	Add Contigencies (1.5% of B)			2,653,528
ii	Add SRB (5% of B)			8,845,094
iii	Third Party Monitoring (1% of A)			1,751,504
iv	Environmental Mitigation Measures (0.5% of B)			884,509
v	Add for Detailed Design and Preparation of Tender Documents (2% of B)			3,538,038
vi	Add for Contruction supervision Consultancy Services (3% of B)			5,307,056
C	**Project Cost**			**199,881,607**

ii) Foreign Exchange Component — Not Applicable

iii) Date of Estimate of Project Cost — September 2022

iv) Basis of determining the Capital Cost — Cost Estimate (road works) has been prepared based on the Government of Sindh, Composite Schedule of Rates 2012 with 20% premium
For Items not available in Sindh CSR 2012 and Asphalt Courses including Prime & Tack Coat, NHA CSR 2022 (Karachi East) is followed.

v) Year wise estimation — Estimated cost is indicated below:

General Cost Abstract

Description	Amount (PKR)
Construction Cost	176,901,878
Project cost	199,881,607

	vi)	History of project approval, year-wise PSDP allocation, release and expenditure	Not Applicable
	vii)	Item-wise year-wise actual expenditure and physical progress	Not Applicable
	viii)	Justification of Revision of PC1 and variation in scope of project if applicable	Not Applicable
	ix)	Item-wise comparison of revised cost with the approved cost and give reasons for variation	Not Applicable
	x)	Exchange rate used to work out FEC in the original and revised PC-1	Not Applicable
8		Annual Operating and Maintenance Cost after completion of the project	
	i)	Local Cost	Nil
	ii)	Foreign Exchange Component	Nil
9		Demand and Supply Analysis	Nil
10		Financial Plan and mode of Provincial Government Block Allocation of ADP Financing, source of funding	Annual Development Plan (ADP Scheme No. 3305/2022-23)
11		Project Benefits and Analysis:	
	i)	Financial	The objective of the project, apart from serving the general public is to provide safe, affordable , high quality, sustainable fast & efficient mass transport service that will improve the quality of life of commuter in Karachi. The project will also be beneficial for private vehicle users as bus will not encroach the traffic lane for Boarding and Alighting of passengers.
	ii)	Economic	➢ Reliable, safe, affordable, high quality and fast mass transport service resulting in reduction in demand of fuel and time saving ➢ To vastly improve the quality of public transport system in Karachi

iii)	Social benefits with indicators	➢ To provide reliable, safe, affordable, high quality and fast mass transport service. ➢ To improve the quality of life of commuters in Karachi. ➢ To vastly improve the quality of public transport system in Karachi. ➢ To provide efficient transport system where people can manage their time for their destination and new busses will help to reduce pollution in the city.
iv)	Employment Generation (direct and indirect)	Negligible
v)	Environmental Impact:	
	Traffic Noise	Negligible
	Air Pollution	Nil
	Water Pollution	Nil
	Drainage/ Run off	Normal
	Community Severance	Improved
	Crop Yield	Nil
	Ground water Contamination	Nil
	People health Wild Life	Nil
	Ecology	Nil
	Biophysical characteristics of the project site including water geology & soil, ecological aquatic & terrestrial, natural resources (mineral / forestry / agriculture and visual quality etc.).	Nil
	Restoration / preservation & re-use embankment	Improved
	Protection of habitants along Communicating routes i.e. Roadways, rail track	Improved
vi)	Impact of delays on project cost and viability	**Impact of delays on project cost and viability** With the prevailing pattern of the increase in the cost of the construction material and that of the labor wages of the project cost, if the implementation of the project is delayed, shall increase, thereby, having an

		undue negative impact on the viability of the project. Also the user, for the period, the project execution is delayed shall remain deprived of the other benefits of the project, mentioned in section 11 of this PC-1.
12	a) Implementation Schedule	Implementation Schedule is attached as Annexure - D
	i) Starting date of the project	After issuance of Administrative Approval.
	ii) Completion date of the project	06 Months after start of Construction
	iii) Item-wise / year wise Implementation Schedule in Line Chart	Implementation Schedule for Physical activities (Bar Chart) is attached at Annexure-D.
	b) Result based Monitoring (RBM) Indicators	Not applicable
13	Management Structure & Manpower requirements including specialized skill during Construction and Operational phases.	Procurement for Detailed Design and Supervision Consultants will be carried out by SMTA. Similarly procurement of Contractor will be carried out by SMTA as per rules and regulations of SPPRA.
14	Additional project / decisions required to maximize socio-economic benefits from the proposed project.	Not applicable
15	Certified that project proposal has been prepared on the basis of instruction provided by the Planning Commission for the preparation of PC-I for infrastructure projects	It is certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Infrastructure Sector Project.

ADP # 3305 (2022-23) CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

Prepared by:

Assistant Director Infrastructure, SMTA

Deputy Director Infrastructure, SMTA

Deputy Director Bus Operations (Addl. Charge), SMTA

Checked by:

Consultant Planning & Coordination, TMTD

Director Infrastructure & Planning, SMTA

Forwarded by:

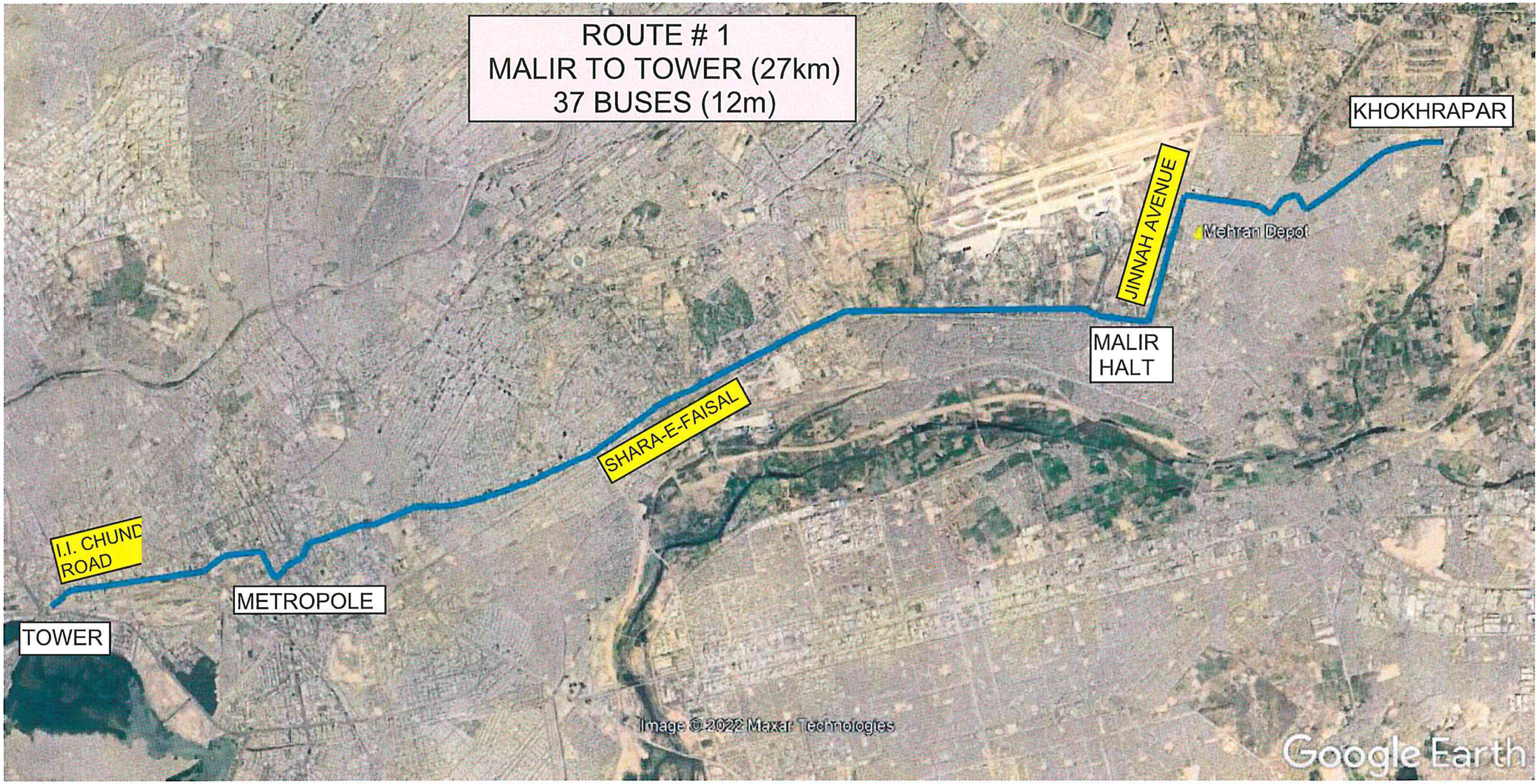
Managing Director, Sindh Mass Transit Authority

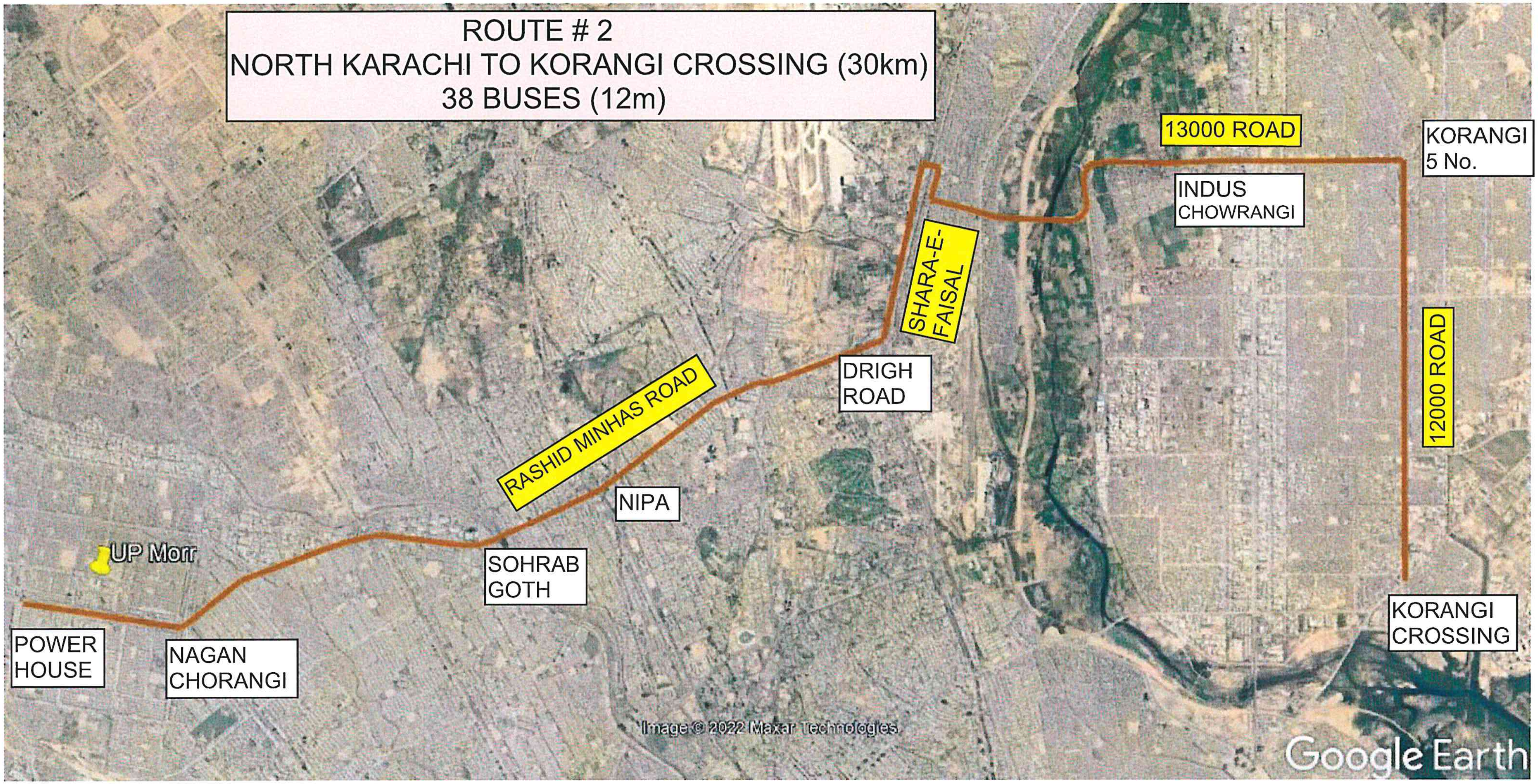
Approved by :

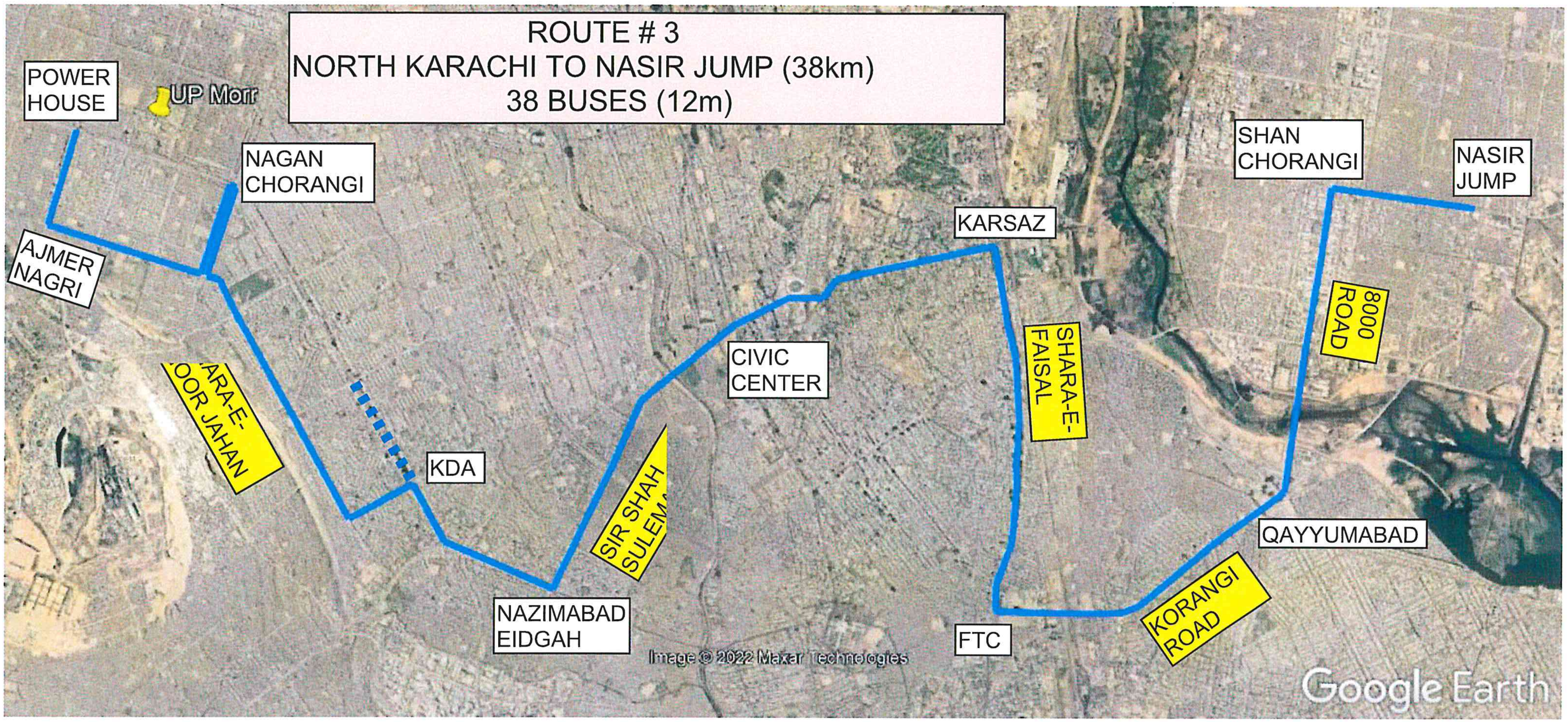
Secretary, (Transport & Mass Transit Department), GoS

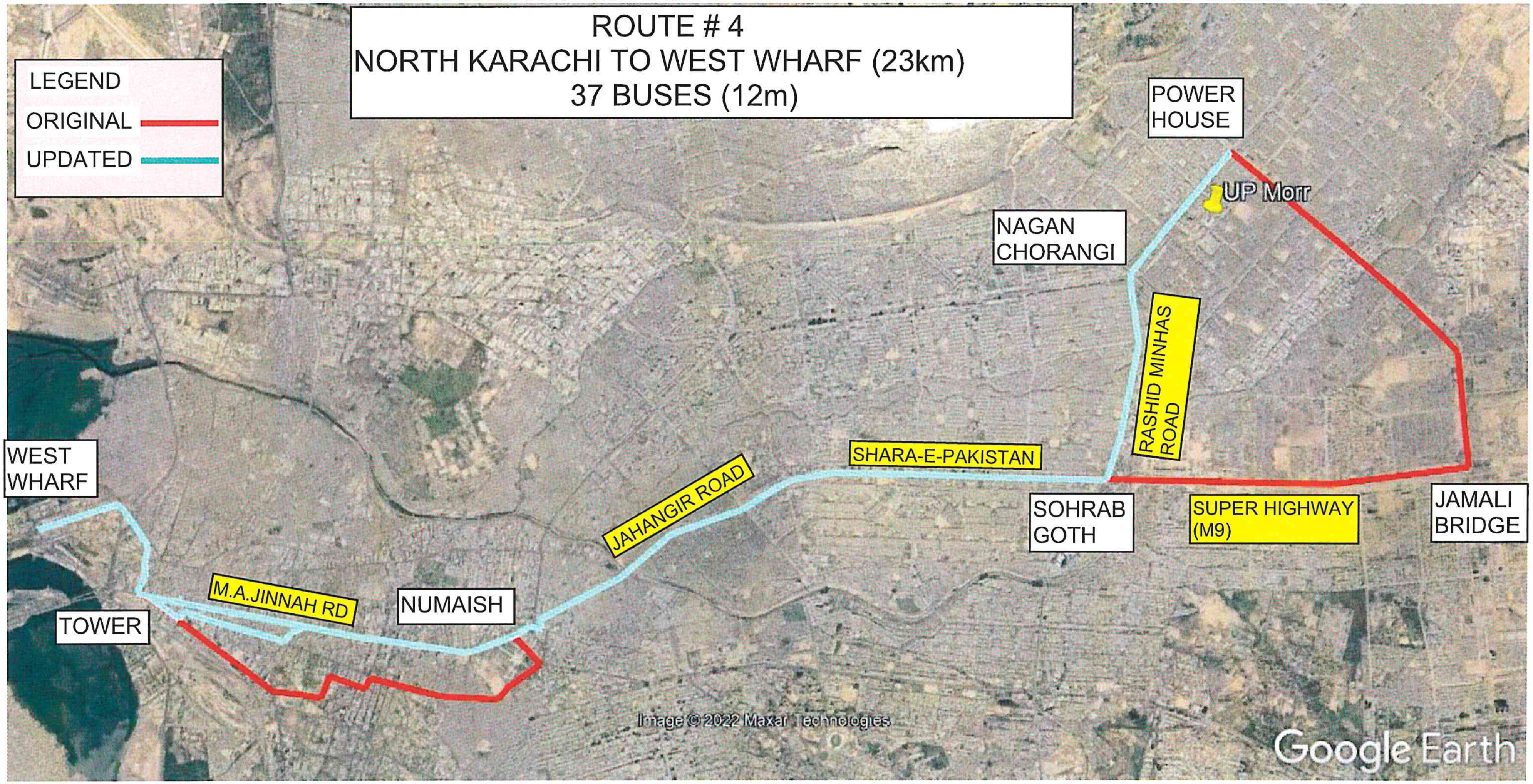
ANNEXURE – A

BUS ROUTE PLAN (S)


ROUTE # 1
MALIR TO TOWER (27km)
37 BUSES (12m)
KHOKHRAPAR
JINNAH AVENUE
Mehran Depot
MALIR HALT
SHARA-E-FAISAL
I.I. CHUND ROAD
METROPOLE
TOWER
Image © 2022 Maxar Technologies
Google Earth

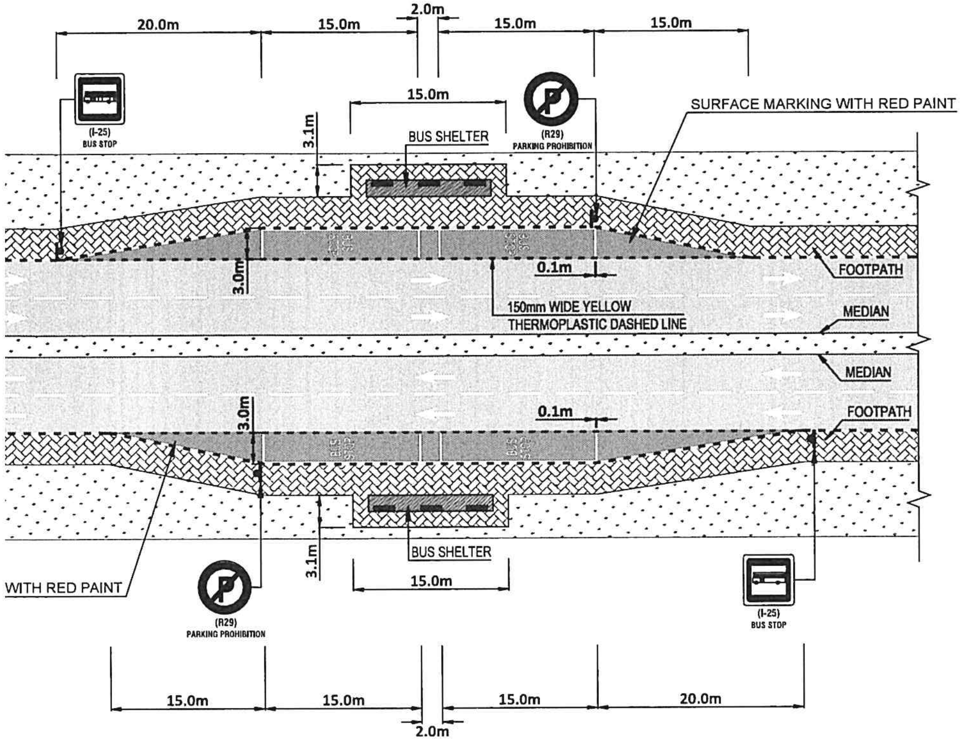

ROUTE # 2
NORTH KARACHI TO KORANGI CROSSING (30km)
38 BUSES (12m)
13000 ROAD
KORANGI 5 No.
INDUS CHOWRANGI
SHARA-E-FAISAL
12000 ROAD
DRIGH ROAD
RASHID MINHAS ROAD
NIPA
UP Morr
SOHRAB GOTH
KORANGI CROSSING
POWER HOUSE
NAGAN CHORANGI
Image © 2022 Maxar Technologies
Google Earth


ROUTE # 3
NORTH KARACHI TO NASIR JUMP (38km)
38 BUSES (12m)
POWER HOUSE
UP Morr
NAGAN CHORANGI
AJMER NAGRI
KDA
NAZIMABAD EIDGAH
CIVIC CENTER
KARSAZ
SHARA-E-FAISAL
FTC
KORANGI ROAD
QAYYUMABAD
8000 ROAD
SHAN CHORANGI
NASIR JUMP
Image © 2022 Maxar Technologies
Google Earth

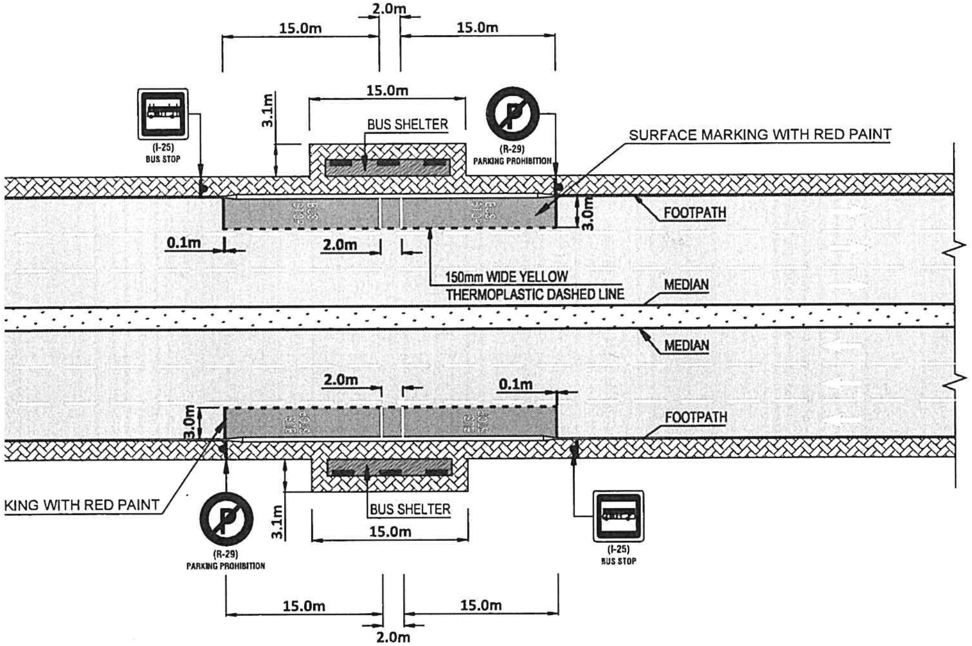

ROUTE # 4
NORTH KARACHI TO WEST WHARF (23km)
37 BUSES (12m)
LEGEND
ORIGINAL
UPDATED
POWER HOUSE
UP Morr
NAGAN CHORANGI
RASHID MINHAS ROAD
SHARA-E-PAKISTAN
JAHANGIR ROAD
WEST WHARF
M.A.JINNAH RD
NUMAISH
TOWER
SOHRAB GOTH
SUPER HIGHWAY (M9)
JAMALI BRIDGE
Image © 2022 Maxar Technologies
Google Earth

ANNEXURE – B

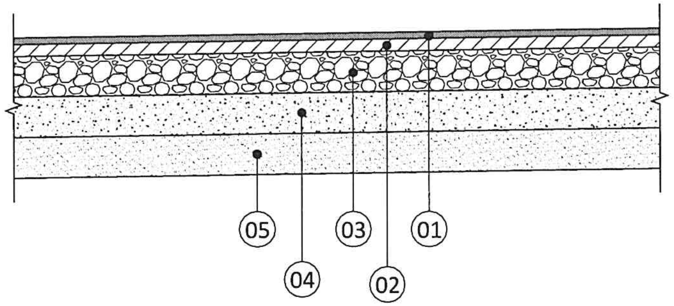
LAYOUT & TYPICAL X-SECTION OF BUSBAYS AND DROP OFF LANES



BUS BAY DETAILS



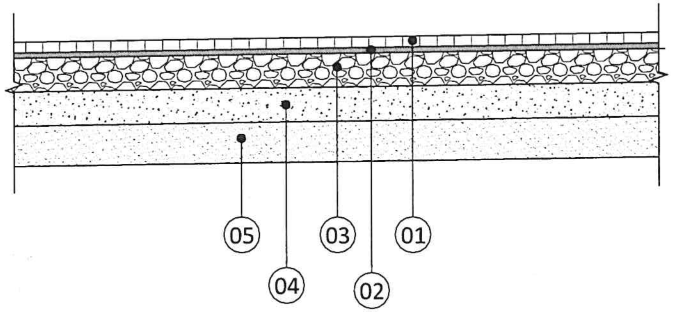
BUS DROP-OFF LANE DETAILS



TYPICAL CROSS SECTION OF ASPHALT PAVEMENT

NOTES:-

1. ASPHALT CONCRETE WEARING COURSE 5cm
2. ASPHALT CONCRETE BASE COURSE 7.5cm
3. AGGREGATE BASE COURSE..25cm
4. SUBBASE COURSE...25cm
5. IMPROVED SUBGRADE...30cm



TYPICAL CROSS SECTION OF PAVER BLOCK

NOTES:-

1. PAVER BLOCK 8cm
2. SAND CUSHION 4cm
3. AGGREGATE BASE COURSE.......................................25cm
4. SUBBASE COURSE...25cm
5. IMPROVED SUBGRADE..30cm

ANNEXURE C
COST ESTIMATE

GOVERNMENT OF SINDH
SINDH MASS TRANSIT AUTHORITY
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
COST ESTIMATE - SUMMARY

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2	**Drop Off Lane - Pavement Marking and Signs including Patch Work**			
i	Patch Work	159,257	20	3,185,140
ii	Ancillary works including Pavement Marking & Signs	207,786	38	7,895,868
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2 (Total)	**Drop Off Lane**			**29,920,876**
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3 (Total)	**New Bus Lay by with Paver blocks**			**56,687,449**
4	Cutting & removing trees within a distance of 100 feet.			
(Highway Schedule 2012 Vol-III Part-VI Item No 4:, Page-15)	(a) Upto 2.5 feet girth.	577	16	9,235
	(b) From 2.6 feet to 6.0 feet girth.	1,129	15	16,934
5	Utility Crossing Ducts and Inspection Chamber	659,955	36	23,758,380
6	Re-location of Electric Poles	180,000	39	7,020,000
A	**Sub - total (1 to 6)**			**175,150,374**
7	Cartage (1% of A)			1,751,504
B	**Construction Cost**			**176,901,878**
i	Add Contigencies (1.5% of B)			2,653,528
ii	Add SRB (5% of B)			8,845,094
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v	Add for Detailed Design and Preparation of Tender Documents (2% of B)			3,538,038
vi	Add for Contruction supervision Consultancy Services (3% of B)			5,307,056
C	**Project Cost**			**199,881,607**

NOTE: (i) Rates are Based on Government of Sindh Composite Schedule of Rates 2012 with 20% Premium
(ii) For Items not available in Sindh CSR 2012 and Asphalt Courses including Prime & Tack Coat, NHA CSR 2022 (Karachi East) is followed.

GOVERNMENT OF SINDH
SINDH MASS TRANSIT AUTHORITY
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
New Bus Bay With Asphalt Pavement
SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Pavement Widening for New Bus Lay Bys with Improved Subgrade							
Highway Schedule 2012 Vol-III Part-VI Item No:3, Page-1.	Preparing improved Sub-Grade consisting of 30 cm (12" inch thick) under Sub-Base with an approved blended materials of PI not more than 6%, uniformaly mixed, compacted to 95% of max: dry density as per Modified AASHTO shall have CBR value more than 8% (Rate i/c cost of A3 material for belending i/c its carriage upto 3.0 miles	CM	51	360.87	72.17	433.04	22,293
NHA -106a	Excavate unsuitable/Surplus Common Material	CM	196	400.88	-	-	78,697
NHA-108a	Formation Of Embankment From Road Way Excavation in Common Material	CM	23	442.81	-	-	10,097
Highway Schedule 2012 Vol-III Part-VI Item No:11(a), Page-3.	Preparing Sub-Base course by supplying and spread-ing stone metal 1-1/2"-2" guage of approved quality from approved quarry in required thickness to proper camber and grade including hand packing filling voids with 20 cft: of pit / canal sand having plasticity index not more than 6% of suitable quality, watering and compacting to achieve 98-100% density as per modified AASHO specifiecations (Rate includes all cost of materials T&P and carriage upto 3 chains).	CM	43	1,548.33	309.67	1,858.00	79,709
Highway Schedule 2012 Vol-III Part-VI Item No:13(a), Page-5.	Preparing Base Course i/c supplying and spreading stone metal of approved qualitiy properly graded to maximum size of 1-1/2" in required thickness to Proper camber and grade including supplying and spreading 15 Cft: screenings and non plastic quarry fines, filling depressions with stone metal after initial rolling including watering and compaction the same so as to achieve 100% density as per modified AASHO specifications. (Rate includes providing and using templates, camber plates, screens, forms as directed .(Rate includes all cost of materials T&P and carriage upto 3 chins).	CM	43	1,855.98	371.20	2,227.18	95,546
NHA -203b	**3" (75mm) Asphaltic Base Course Plant mix** Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 60/70 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Entineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spread using pvaer machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage).	CM	12	19,053.41	-	-	229,613
NHA -305b	**2" (50 mm) Thick Asphalt Concrete Wearing** Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage).	CM	8	20,193.93	-	-	162,239
NHA -302a	**Prime Coat** Applying priming coat or tack coat with approved binder at the required rate including cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte.	SM	161	135.78	-	-	21,818
NHA -303a	**Tack Coat** Applying priming coat or tack coat with approved binder at the required rate including cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte.	SM	161	55.73	-	-	8,955
						Pavement Widening for New Bus Lay Bys	**708,967**

GOVERNMENT OF SINDH
SINDH MASS TRANSIT AUTHORITY
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
New Bus Bay With Asphalt Pavement
SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Ancillary Works including Pavement Marking & Signs							
Highway Schedule 2012 Vol-III Part-VI Item No18(b):, Page-17.	Traffic Road Signs Category 18(b)	Each	1	14,600.00	2920.00	17,520.00	17,520
Highway Schedule 2012 Vol-III Part-VI Item No18 C(I):, Page-17.	Traffic Road Signs Category 18 C(I)	Each	1	16,765.00	3353.00	20,118.00	20,118
Highway Schedule 2012 Vol-III Part-VI Item No 13:, Page-15.	Pavement marking in Reflective Tharmo Plastic Paint for Lines of 6" Width.	M	107	135.31	27.06	162.37	17,331
Highway Schedule 2012 Vol-III Part-VI Item No 13:, Page-15.	Pavement marking in reflective TP paint for Surface (Red)	M	726	135.31	27.06	162.37	117,883
NHA-608j2	Pavement marking in reflective TP paint for 4.0 m arrows	Each	2	1,946.74	-	-	3,894
Highway Schedule 2012 Vol-III Part-VI Item No 14:, Page-16.	**Kerb Stone** Providing & fixing Precast Edge Block 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor	M	76	974.19	194.84	1,169.03	88,847
NHA -217b	**Footpath** Installation of Paving Blocks 80mm thick including Sand Cushion and Sand Filling in joints	SM	228	3,000.00	-	-	684,000
						Ancillary Works including Pavement Marking & Signs	**949,593**
						Total for New Bus Lay Bys	**1,658,560**

GOVERNMENT OF SINDH
SINDH MASS TRANSIT AUTHORITY
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
New Bus Bay With Asphalt Pavement
SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Pavement Widening for New Bus Lay Bys without Improved Subgrade							
NHA -106a	Excavate unsuitable/Surplus Common Material	CM	196	400.88	-	-	78,697
NHA -108a	Formation Of Embankment From Road Way Excavation in Common Material	CM	23	442.81	-	-	10,097
Highway Schedule 2012 Vol-III Part-VI Item No:11(a), Page-3.	Preparing Sub-Base course by supplying and spread-ing stone metal 1-1/2"-2" guage of approved quality from approved quarry in required thickness to proper camber and grade including hand packing filling voids with 20 cft: of pit / canal sand having plasticity index not more than 6% of suitable quality, watering and compacting to achieve 98-100% density as per modified AASHO specifiecations (Rate includes all cost of materials T&P and carriage upto 3 chains).	CM	43	1,548.33	309.67	1,858.00	79,709
Highway Schedule 2012 Vol-III Part-VI Item No:13(a), Page-5.	Preparing Base Course i/c supplying and spreading stone metal of approved qualitiy properly graded to maximum size of 1-1/2" in required thickness to Proper camber and grade including supplying and spreading 15 Cft: screenings and non plastic quarry fines, filling depressions with stone metal after initial rolling including watering and compaction the same so as to achieve 100% density as per modified AASHO specifications. (Rate includes providing and using templates, camber plates, screens, forms as directed .(Rate includes all cost of materials T&P and carriage upto 3 chins).	CM	43	1,855.98	371.20	2,227.18	95,546
NHA -203b	**3" (75mm) Asphaltic Base Course Plant mix** Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 60/70 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Entineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spread using pvaer machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage).	CM	12	19,053.41	-	-	229,613
NHA -305b	**2" (50 mm) Thick Asphalt Concrete Wearing** Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage).	CM	8	20,193.93	-	-	162,239
NHA -302a	**Prime Coat** Applying priming coat or tack coat with approved binder at the required rate including cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte.	SM	161	135.78	-	-	21,818
NHA -303a	**Tack Coat** Applying priming coat or tack coat with approved binder at the required rate including cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte.	SM	161	55.73	-	-	8,955
						Pavement Widening for New Bus Lay Bys	**686,674**

GOVERNMENT OF SINDH

SINDH MASS TRANSIT AUTHORITY

CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

Pavement Marking of Drop Off Lane including Patch Work

SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Patch Work							
Highway Schedule 2012 Vol-III Part-VI Item No:3, Page-1	Preparing improved Sub-Grade consisting of 30 cm (12" inch thick) under Sub-Base with an approved blended materials of PI not more than 6%, uniformaly mixed, compacted to 95% of max: dry density as per Modified AASHTO shall have CBR value more than 8% (Rate i/c cost of A3 material for belending i/c its carriage upto 3.0 miles	CM	10	360.87	72.17	433.04	4,288
NHA-106a	Excavate unsuitable/Surplus Common Material	CM	38	400.88	-	-	15,135
Highway Schedule 2012 Vol-III Part-VI Item No:11(a), Page-3.	Preparing Sub-Base course by supplying and spread-ing stone metal 1-1/2"-2" guage of approved quality from approved quarry in required thickness to proper camber and grade including hand packing filling voids with 20 cft: of pit / canal sand having plasticity index not more than 6% of suitable quality, watering and compacting to achieve 98-100% density as per modified AASHO specifiecations (Rate includes all cost of materials T&P and carriage upto 3 chains).	CM	8	1,548.33	309.67	1,858.00	15,329
Highway Schedule 2012 Vol-III Part-VI Item No:13(a), Page-5.	Preparing Base Course i/c supplying and spreading stone metal of approved qualitiy properly graded to maximum size of 1-1/2" in required thickness to Proper camber and grade including supplying and spreading 15 Cft: screenings and non plastic quarry fines, filling depressions with stone metal after initial rolling including watering and compaction the same so as to achieve 100% density as per modified AASHO specifications. (Rate includes providing and using templates, camber plates, screens, forms as directed .(Rate includes all cost of materials T&P and carriage upto 3 chains).	CM	8	1,855.98	371.20	2,227.18	18,375
NHA -203b	**3" (75mm) Asphaltic Base Course Plant mix** Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 60/70 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Entineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spread using pvaer machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage).	CM	2	19,053.41	-	-	44,157
NHA -305b	**2" (50 mm) Thick Asphalt Concrete Wearing** Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage).	CM	1.55	20,193.93	-	-	31,200
NHA -302a	**Prime Coat** Applying priming coat or tack coat with approved binder at the required rate including cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte.	SM	161	135.78	-	-	21,818
NHA -303a	**Tack Coat** Applying priming coat or tack coat with approved binder at the required rate including cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte.	SM	161	55.73	-	-	8,955
						Sub - Total for Patch work	**159,257**

GOVERNMENT OF SINDH

SINDH MASS TRANSIT AUTHORITY

CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

New Bus Lay Bys with Paver Blocks

SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Pavement Widening for New Bus Lay Bys with Improved Subgrade							
Highway Schedule 2012 Vol-III Part-VI Item No:3, Page-1	Preparing improved Sub-Grade consisting of 30 cm (12" inch thick) under Sub-Base with an approved blended materials of PI not more than 6%, uniformaly mixed, compacted to 95% of max: dry density as per Modified AASHTO shall have CBR value more than 8% (Rate i/c cost of A3 material for belending i/c its carriage upto 3.0 miles	CM	51	360.87	72.17	433.04	22,294
NHA-106a	Excavate unsuitable/Surplus Common Material	CM	183	400.89	-	-	73,402
NHA-108a	Formation Of Embankment From Road Way Excavation in Common Material	CM	23	442.81	-	-	10,097
Highway Schedule 2012 Vol-III Part-VI Item No:11(a), Page-3.	Preparing Sub-Base course by supplying and spread-ing stone metal 1-1/2"-2" guage of approved quality from approved quarry in required thickness to proper camber and grade including hand packing filling voids with 20 cft: of pit / canal sand having plasticity index not more than 6% of suitable quality, watering and compacting to achieve 98-100% density as per modified AASHO specifiecations (Rate includes all cost of materials T&P and carriage upto 3 chains).	CM	43	1,548.33	309.67	1,858.00	79,709
NHA-217b	Installation of Paving Blocks 80mm thick including Sand Cushion and Sand Filling in joints	SM	172	3,000.00	-	-	514,800
NHA-401f	Lean Concrete	CM	0.86	8,231.83	-	-	7,080
Highway Schedule 2012 Vol-III Part-VI Item No:13(a), Page-5.	Preparing Base Course i/c supplying and spreading stone metal of approved qualitiy properly graded to maximum size of 1-1/2" in required thickness to Proper camber and grade including supplying and spreading 15 Cft: screenings and non plastic quarry fines, filling depressions with stone metal after initial rolling including watering and compaction the same so as to achieve 100% density as per modified AASHO specifications. (Rate includes providing and using templates, camber plates, screens, forms as directed .(Rate includes all cost of materials T&P and carriage upto 3 chins).	CM	40	1,855.98	371.20	2,227.18	89,466
						Pavement Widening for New Bus Lay Bys	**796,848**

GOVERNMENT OF SINDH
SINDH MASS TRANSIT AUTHORITY
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
New Bus Lay Bys with Paver Blocks
SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Ancillary Works including Pavement Marking & Signs							
Highway Schedule 2012 Vol-III Part-VI Item No18(b):, Page-17	Traffic Road Signs Category 18(b)	Each	1	14,600.00	2,920.00	17,520.00	17,520
Highway Schedule 2012 Vol-III Part-VI Item No18 C(I):, Page-17.	Traffic Road Signs Category 18 C(I)	Each	1	16,765.00	3,353.00	20,118.00	20,118
Highway Schedule 2012 Vol-III Part-VI Item No 13:, Page-15	Pavement marking in Reflective Tharmo Plastic Paint for Lines of 6" Width.	M	107	135.31	27.06	162.37	17,331
NHA - 608j2	Pavement marking in reflective TP paint for 4.0 m arrows	Each	2	1,947.40	-	-	3,895
	Kerb Stone						
Highway Schedule 2012 Vol-III Part-VI Item No 14:, Page-16	Providing & fixing Precast Edge Block 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor	M	76	974.19	194.84	1,169.03	88,847
	Footpath						
NHA-217b	Installation of Paving Blocks 80mm thick including Sand Cushion and Sand Filling in joints	SM	228	3,000.00	-	-	684,000
						Ancillary Works including Pavement Marking & Signs	**831,711**
						Total for New Bus Lay Bys	**1,628,559**

GOVERNMENT OF SINDH

SINDH MASS TRANSIT AUTHORITY

CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

New Bus Lay Bys with Paver Blocks

SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Pavement Widening for New Bus Lay Bys without Improved Subgrade							
NHA-106a	Excavate unsuitable/Surplus Common Material	CM	183	400.89	-	-	73,402
NHA-108a	Formation Of Embankment From Road Way Excavation in Common Material	CM	23	442.81	-	-	10,097
Highway Schedule 2012 Vol-III Part-VI Item No:11(a), Page-3.	Preparing Sub-Base course by supplying and spread-ing stone metal 1-1/2"-2" guage of approved quality from approved quarry in required thickness to proper camber and grade including hand packing filling voids with 20 cft: of pit / canal sand having plasticity index not more than 6% of suitable quality, watering and compacting to achieve 98-100% density as per modified AASHO specifiecations (Rate includes all cost of materials T&P and carriage upto 3 chains).	CM	43	1,548.33	309.67	1,858.00	79,709
NHA-217b	Installation of Paving Blocks 80mm thick including Sand Cushion and Sand Filling in joints	SM	172	3,000.00	-	-	514,800
NHA-401f	Lean Concrete	CM	0.86	8,231.83	-	-	7,080
Highway Schedule 2012 Vol-III Part-VI Item No:13(a), Page-5.	Preparing Base Course i/c supplying and spreading stone metal of approved qualitiy properly graded to maximum size of 1-1/2" in required thickness to Proper camber and grade including supplying and spreading 15 Cft:	CM	40	1,855.98	371.20	2,227.18	89,466
						Pavement Widening for New Bus Lay Bys	**774,554**

GOVERNMENT OF SINDH
SINDH MASS TRANSIT AUTHORITY
CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI
New Bus Lay Bys with Paver Blocks
SUMMARY

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	BASIC RATE (PKR)	PREMIUM @ 20%	APPLIED RATE (PKR)	AMOUNT (PKR)
Ancillary Works including Pavement Marking & Signs							
Highway Schedule 2012 Vol-III Part-VI Item No18(b):, Page-17	Traffic Road Signs Category 18(b)	Each	1	14,600.00	2,920.00	17,520.00	17,520
Highway Schedule 2012 Vol-III Part-VI Item No18 C(I):, Page-17.	Traffic Road Signs Category 18 C(I)	Each	1	16,765.00	3,353.00	20,118.00	20,118
Highway Schedule 2012 Vol-III Part-VI Item No 13:, Page-15	Pavement marking in Reflective Tharmo Plastic Paint for Lines of 6" Width.	M	107	135.31	27.06	162.37	17,331
NHA - 608j2	Pavement marking in reflective TP paint for 4.0 m arrows	Each	2	1,947.40	-	-	3,895
	Kerb Stone						
Highway Schedule 2012 Vol-III Part-VI Item No 14:, Page-16	Providing & fixing Precast Edge Block 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor	M	76	974.19	194.84	1,169.03	88,847
	Footpath						
NHA - 217b	Installation of Paving Blocks 80mm thick including Sand Cushion and Sand Filling in joints	SM	228	3,000.00	-	-	684,000
						Ancillary Works including Pavement Marking & Signs	**831,711**
						Total for New Bus Lay Bys	**1,606,265**

GOVERNMENT OF SINDH

SINDH MASS TRANSIT AUTHORITY

CONSTRUCTION OF BUS LAY BYS ALONG MAJOR ROADS IN KARACHI

SUMMARY

UTILITY CROSSING DUCTS AND INSPECTION CHAMBERS

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
NHA -107a	Structural Excavation in Common Material	CM	37.789	391.34	14,789
NHA -107e	Common Backfill	CM	19.661	314.75	6,189
NHA -401a3i	Concrete Class A3 (Underground)	CM	5.093	15,006.78	76,430
NHA -401b	Concrete Class "B"	CM	3.968	11,073.55	43,940
NHA -401f	Lean Concrete	CM	0.578	8,231.83	4,758
NHA -401gii	Precast Concrete Class "A3"	CM	0.269	17,590.21	4,732
NHA -404b	Reinforcement as per AASHTO M 31 Grade 60	Ton	0.869	241,618.65	209,967
NHA -404h	Reinforcement (Structural Shapes) as per ASTM-A-36	Ton	0.085	276,465.50	23,412
NHA -501a	Reinforced Concrete Pipe AASHTO M 170 Class II dia 310mm	M	15.000	3,417.10	51,257
NHA -510	Dismantling of Structures and Obstructions	CM	114	1,969.13	224,481
TOTAL FOR UTILITY CROSSING DUCTS AND INSPECTION CHAMBERS:					**659,955**

ANNEXURE D

IMPLEMENTATION SCHEDULE FOR PHYSICAL ACTIVITIES (BAR CHART)

IMPLEMENTATION SCHEDULE (Physical Activities)

Sr. No.	ITEMS OF WORKS	Months					
		1	2	3	4	5	6
1	EARTHWORK	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■		
2	SUB BASE AND BASE COURSES	■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■		
3	SURFACE COURCES	■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	
4	INSTALLATION OF PAVER BLOCKS	■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	
5	PAVEMENT MARKINGS & TRAFFIC SIGNS		■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■
6	ANCILLARY WORKS		■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■ ■